

WHAT IS CLAIMED IS:

1. An Bluetooth device, comprising:
at least one buffer storing HCI level ACL/SCO or L2CAP data packets; and
a packet generator that retrieves data from and stores data into the at least one
5 buffer without employing any other storage and that converts data retrieved from or
stored into the at least one buffer between Bluetooth data packet format and HCI level
ACL/SCO or L2CAP data packet format.
2. The device of claim 1, wherein the generator employs pointers to
10 addresses in the at least one buffer for identifying data that is to be retrieved from the at
least one buffer.
3. The device of claim 2, wherein the generator updates pointer values after
at least one data transmission of data from the at least one buffer.
- 15 4. The device of claim 3, wherein the generator sets a previous starting
pointer value and a starting pointer value and updates said pointer values after said at
least one data transmission of data from the at least one buffer.
- 20 5. The device of claim 4, wherein the generator updates said pointer values
by setting the previous starting pointer value to be equal to the starting pointer value
before the transmission, and sets the next starting pointer value to a new value.
- 25 6. The device of claim 2, wherein the generator sets a previous starting
pointer value and a starting pointer value and checks whether a previous transmission by
the generator has been successfully received by another device, and sets the next starting
pointer value equal to the previous starting pointer value that was effective prior to the
previous transmission when there is indication that the previous transmission by the
generator has not been successfully received by such another device.

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7. The device of claim 2, wherein the generator transmits data retrieved from the at least one buffer to a Bluetooth device, and selects data to be transmitted using a next starting pointer value.

5 8. The device of claim 7, wherein the generator selects the data from the buffer at addresses pointed to by the next starting pointer value.

9. The device of claim 1, further comprising a link controller and a link manager monitoring whether the at least one buffer is full or empty.

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10. The device of claim 9, wherein the link controller checks for indication that the at least one buffer is full, and causes a negative acknowledgment to be sent to another device when there is indication that the at least one buffer is full when a packet is received.

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11. The device of claim 1, said buffer has a field for storing length of data stored in the buffer, wherein said generator alters the length of data stored in the field after at least one storing of data into the buffer.

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12. The device of claim 1, said buffer and said generator connected without a physical link.

13. The device of claim 12, further comprising a memory controller controlling access to the buffer by the generator and a HCI.

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14. The device of claim 12, further comprising a host memory controller controlling access to the buffer by the generator and a host driver.

15. The device of claim 14, wherein the host memory controller also controls access to the buffer by a HCI.

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16. The device of claim 14, wherein the buffer forms a portion of a host memory.

17. The device of claim 1, wherein the generator includes a hardware circuit segmenting a HCI ACL or L2CAP data packet and inserting a segment of data from the HCI ACL or L2CAP data packet into a Bluetooth packet.

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18. The device of claim 17, wherein the generator includes a composer/decomposer.

~~19.~~ An Bluetooth device, comprising:
10 at least one buffer storing HCI level ACL/SCO or L2CAP data packets; and
a packet generator that segments and retrieves data from the at least one buffer without employing any other storage and that converts segments of data retrieved from the at least one buffer from HCI level ACL/SCO or L2CAP data packet format to Bluetooth data packet format.

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~~20.~~ An Bluetooth device, comprising:
at least one buffer storing HCI level ACL/SCO or L2CAP data packets; and
a packet generator that stores data into the at least one buffer without employing any other storage and that assembles data from a plurality of Bluetooth data packets into a
20 HCI level ACL/SCO or L2CAP data packet.

~~21.~~ An Bluetooth device, comprising:
a HCI;
at least one buffer storing HCI level ACL/SCO data packets;
25 a packet generator that retrieves data from and stores data into the at least one buffer without employing any other storage and that converts data retrieved from or stored into the at least one buffer between Bluetooth data packet format and HCI level ACL/SCO data packet format; and

a memory controller controlling access to the buffer by the generator and the HCI.
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22. The device of claim 21, said device further comprising a host driver, said controller controlling access to the buffer by the generator and the host driver.

23. An Bluetooth device, comprising:

a host driver;

at least one buffer storing HCI level ACL/SCO or L2CAP data packets;

5 a packet generator that retrieves data from and stores data into the at least one buffer without employing any other storage and that converts data retrieved from or stored into the at least one buffer between Bluetooth data packet format and HCI level ACL/SCO or L2CAP data packet format; and

a memory controller controlling access to the buffer by the generator and the host driver.

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24. A method for communication with a Bluetooth device, comprising:

retrieving from and storing data into at least one buffer storing HCI level ACL/SCO or L2CAP data packets; and

15 converting data retrieved from and stored into the at least one buffer between Bluetooth data packet format and HCI level ACL/SCO or L2CAP data packet format without employing any other storage.

25. The method of claim 24, wherein pointers are employed to addresses in the at least one buffer for identifying data that is to be retrieved from the at least one
20 buffer, further comprising updating pointer values after at least one data transmission of data from the at least one buffer.

26. The method of claim 25, further comprising setting a previous starting pointer value and a starting pointer value, wherein said updating updates said pointer
25 values after said at least one data transmission of data from the at least one buffer.

27. The method of claim 26, wherein the updating updates said pointer values by setting the previous starting pointer value to be equal to the starting pointer value before the transmission, and setting the next starting pointer value to a new value.

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28. The method of claim 25, further comprising setting a previous starting pointer value and a starting pointer value and checking whether a previous transmission by the generator has been successfully received by another device, and setting the next

starting pointer value equal to the previous starting pointer value prior to the previous transmission when there is indication that the previous transmission by the generator has not been successfully received by such another device.

5 29. The method of claim 25, further comprising transmitting data retrieved from the at least one buffer to a Bluetooth device, and selecting data to be transmitted using a next starting pointer value.

10 30. The method of claim 30, wherein the selecting selects the data from the buffer at addresses pointed to by the next starting pointer value.

15 31. The method of claim 24, wherein a storage accessible is employed for monitoring whether the at least one buffer is full or empty, further comprising checking the storage for indication that the at least one buffer is full, and causing a negative acknowledgment to be sent to another device when there is indication that the at least one buffer is full.